Mitigation Strategy

Introduction

The State Hazard Mitigation Advisory Team prepared the goals, objectives, and mitigation actions and initiatives – the mitigation action agenda – of the State Hazard Mitigation Plan. This team developed the action agenda that begins on page 22 following:

- Presentations and discussions on natural hazards and their impact on the state (the risk assessment of this plan).
- Review and discussion of previous mitigation planning initiatives.
- Review and discussion of the mitigation goals and objectives of the state agencies participating in development of this plan, and of approved local plans.

The mitigation action agenda addresses or solves statewide mitigation issues or problems rather than identifying which state facilities require seismic retrofit, for example; the annexes of the participating agencies appropriately provide the lowest level of detail and actions designed to reduce damage or injuries at the facility level.

Out of the State Hazard Mitigation Advisory Team's discovery and deliberation process, it developed the following mission statement for the State Hazard Mitigation Plan and the following goals and objectives for hazard mitigation. The goals and objectives guided development of the action agenda for this plan, and they will foster a vision for hazard mitigation and disaster resistance throughout the state government of Washington.

Mission of the State Hazard Mitigation Plan – Reduce the adverse impacts of natural hazards and losses caused by natural hazard disasters.

State Mitigation Goals and Objectives:

Goal 1: Protect Life.

Objective 1.1 – Improve systems that provide warning and emergency communications.
Objective 1.2 – Develop or amend laws so they effectively address hazard mitigation.
Objective 1.3 – Reduce the impacts of hazards on vulnerable populations.
Objective 1.4 – Strengthen state and local building code enforcement.
Objective 1.5 – Train emergency responders.

Goal 2: Protect Property.

Objective 2.1 – Protect critical assets.
Objective 2.2 – Protect and preserve facility contents.
Objective 2.3 – Reduce repetitive losses, including those caused by flooding.

Goal 3: Promote a Sustainable Economy.

Objective 3.1 – Provide incentives for mitigation planning and actions.
Objective 3.2 – Form partnerships to leverage and share resources.
Objective 3.3 – Continue critical business operations.

Goal 4: Protect the Environment.

Objective 4.1 – Develop hazard mitigation policies that protect the environment.

Goal 5: Increase Public Preparedness for Disasters.

Objective 5.1 – Understand natural hazards and the risk they pose.
Objective 5.2 – Improve hazard information, including databases and maps.
Objective 5.3 – Improve public knowledge of hazards and protective measures so individuals appropriately respond during hazard events.
Objective 5.4 – Develop new policies to enhance hazard mitigation initiatives.

Once specific goals and objectives were established, the State Hazard Mitigation Advisory Team developed an action agenda for each goal and objective, considering the same factors listed above. The state hazard mitigation action agenda begins on page 22 of this chapter.

The Governor's Emergency Management Council reviewed and discussed the goals and objectives above, as well as the mitigation action agenda of this plan. The council voted unanimously in March 2003 to recommend the Governor approve this mitigation plan for the state. The Governor's adoption and promulgation of this plan is pending, and expected by mid-summer 2004.

State agencies participating in this plan developed their own hazard mitigation goals and objectives; their goals are in agency annexes at the rear of this plan. A planning guide prepared specifically for agencies provided them with guidance on how to develop their own hazard mitigation goals and mitigation action plans; however, the process used by each agency to develop their individual action agendas are described in the individual agency annexes. (The planning guide used by state agencies is in Tab 10 ahead of the agency annexes in this plan.)

Special note: As of April 10, 2004, the Federal Emergency Management Agency approved eight local hazard mitigation plans, only two of which were multi-jurisdictional plans. After reviewing both approved plans as well as a number of draft plans submitted for state review, the Mitigation Section of the State Emergency Management Division determined that the goals and objectives of these local plans and the goals and objectives of this state plan closely track with one another. The goals and objectives of nearly all local plans address protecting life and property and preparing the public for hazard events. About half address protecting the environment and economy.

For the second edition of the State Hazard Mitigation Plan (c. 2007), it is estimated that more than 30 multi-jurisdiction local hazard mitigation plans will be completed and approved. This number of plans, and the areas they represent, will provide more than

sufficient information to influence the Mitigation Strategy of the state plan beyond the setting of goals and objectives.

State Capability Assessment

Reducing hazards has long been a priority of the State of Washington. In the 1950s, earthquake construction standards were established in state law for schools, hospitals and places of public assembly for 300 or more people (RCW 70.86) and assistance made available to local jurisdictions for flood control projects and planning. More recently, the Growth Management Act of 1990 requires all cities and counties to identify and protect critical areas such as frequently flooded areas and geologically hazardous areas, and for the fastest-growing counties (and their cities) to develop comprehensive land use plans to limit growth to identified urban growth areas. In 2003, the Legislature approved a measure that adopts new IBC international building, fire and mechanical codes that take into account the current seismic risk and other hazard factors; these codes take affect statewide in July 2004.

Staff from the Mitigation Section of the State Emergency Management Division worked with the State Hazard Mitigation Advisory Team and state agencies to evaluate the state regulations, policies and state-funded or administered programs that benefit hazard mitigation activities to develop a better understanding of state government activities related to hazard mitigation. The following state hazard mitigation capability matrix is the result of this effort.

Among the best examples of hazard mitigation in state government are the Growth Management Act, the Flood Control Assistance Account Program, and the FEMA-funded, state-administered hazard mitigation programs; however, a myriad of other programs, funding sources, executive orders, and interagency agreements have elements that support or facilitate hazard mitigation.

Growth Management Act – This state law (RCW 36.70A) requires all cities, towns and counties in the state to identify critical areas, and to establish regulations to protect and limit development in those areas. Among the critical areas defined by state law are frequently flooded areas (floodplains, and areas potentially impacted by tsunamis and high tides driven by strong winds) and geologically hazardous areas (those areas susceptible to erosion, landslide, seismic activity, or other geological events such as coalmine hazards, volcanic hazard, mass wasting, debris flows, rock falls, and differential settlement).

Guidance provided to local government states that critical areas protection programs should address a number of issues, including:

- Protecting members of the public, public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, volcanic eruptions, or flooding.

- Maintaining healthy, functioning ecosystems through the protection of unique, fragile, and valuable elements of the environment.

- Directing activities not dependent on critical areas resources to less ecologically sensitive sites, and mitigating unavoidable impacts to critical areas by regulating alterations in and adjacent to those areas.

- Preventing cumulative adverse environmental impacts to frequently flooded areas.

Since 1995, local governments must consider best available science in their identification and protection of critical areas; a catalog of sources of best available science has been prepared for their use. (Note: Initial critical area regulations, developed in the early 1990s, were not prepared to the best available science standard.) Every seven years, cities, towns and counties must review and revise as necessary their critical areas policies; such a review cycle was begun with new legislation passed in 2003 that set into motion the latest review and revision cycle for local jurisdictions.

The Growth Management Act also allows those cities, towns and counties required or voluntarily choosing to develop comprehensive plans to add an optional natural hazard reduction element to those plans. To facilitate the development of natural hazard reduction elements, the Department of Community Trade and Economic Development – Growth Management Services used a Hazard Mitigation Grant Program grant to develop and publish a guidebook in on how to incorporate natural hazard reduction into local land-use plans.

Flood Control Assistance Account Program – This program, administered by the Department of Ecology, provides financial assistance to eligible local agencies that belong to the National Flood Insurance Program for preparing comprehensive flood control management plans and flood control maintenance projects that protect human life and property from flood related events. The program provides $1 million per year in grants during the current 2003-05 biennial state budget (previously, the program provided $2 million per year). The limited resources will be focused on local planning during this biennium – including completion of floodplain management plans begun in previous years and *development of the flood planning element of local hazard mitigation plans being prepared under 44 CFR Part 201.6* (emphasis added).

Federal hazard mitigation programs – The Hazard Mitigation Grant Program, Flood Mitigation Assistance Program, and the Pre-Disaster Mitigation Program have been the state's best and most significant tools for hazard mitigation in recent years. Since April 1989, the Hazard Mitigation Grant Program has provided an aggregate investment of more than $90 million for planning and projects designed to reduce or eliminate hazard-caused damage throughout the state. (This figure includes figures from 16 disasters, but does not include the state's most recent disaster, October 2003 floods.) HMGP has funded a wide range of hazard-reduction projects, ranging from strengthening water

towers so they do not fall during earthquakes to purchase of repetitive flood loss properties.

Since early 2002, the Washington Emergency Management Division has required recipients of Hazard Mitigation Grant Program construction grants to develop a hazard mitigation plan as a condition of receipt of the grant. Much smaller investments from the Flood Mitigation Assistance and the Pre-Disaster Mitigation programs have paid for the flood element of the local hazard mitigation plan (FMA) or for entire local plans (PDM planning). Additionally, several local jurisdictions have chosen to invest their Emergency Management Performance Grant funds in hazard mitigation planning.

With its most recent revision, October 2003, the state's administrative plan for all three hazard mitigation programs requires all construction-related mitigation projects to support the general mitigation objectives in the state's hazard mitigation strategy. (Note: As of this writing, the state mitigation strategy adopted and published in 2000 is the strategy of record. This document, developed under the requirements of 44 CFR Parts 201.4 and 201.5, will become the strategy of record after adoption by the state and upon approval by FEMA.)

State Hazard Mitigation Capability Matrix

The matrix below identifies the most significant state funded or state administered programs, policies, regulations or practices related to hazard mitigation or loss reduction. Many of the listed programs provide funding for various hazard mitigation activities.

State law (Revised Code of Washington, or RCW) and implementing regulations (Washington Administrative Code, or WAC) are cited for state programs in listings below.

Other state and federal programs or initiatives may support or facilitate hazard mitigation or loss reduction. Information on these programs are on the website maintained by the State Infrastructure Assistance Coordinating Council, www.infrafunding.wa.gov.

Definitions:

> *Support loss reduction* – Programs, plans, policies, regulations, funding or practices that help implement mitigation measures.
>
> *Facilitate loss reduction* – Programs, plans, policies, etc., that make implementing mitigation measures easier.
>
> *Hinder loss reduction* – Programs, plans, policies, etc., that pose obstacles to implementing mitigation measures.

State Mitigation Capability Assessment

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
Department of Community Trade and Economic Development, Growth Management Services	Critical Areas Ordinance (RCW 36.70A, WAC 365-190-080)	**X**			**Yes, for developing plans and regulations**	Growth Management Act requires all cities and counties in the state to identify critical areas including frequently flooded areas and geologically hazardous areas, and to establish regulations that limit development in those areas.
	Natural Hazard Reduction Element of Local Comprehensive Plan (RCW 36.70A, WAC 365-190-080)		**X**			Growth Management Act allows local planning jurisdictions to add optional elements to their comprehensive land-use plans, including an element dealing with natural hazard reduction.
Department of Community Trade and Economic Development, State Building Code Council	State Building Code (RCW 19-27, WAC 51)	**X**				State Building Code Act adopted in 1974; set 1973 UBC codes as statewide minimum. The Legislature approved use of the IBC 2003 building codes during the 2003 legislative session. The State Building Code Council adopted the codes and amendments, which take affect July 2004.

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
	Earthquake Construction Standards (RCW 70.86)			X		Approved in 1955. Requires newly constructed schools, hospitals, and places of public assembly to withstand a lateral force of 5 percent of the building weight. Law did not keep up with changes in code criteria; outdated by time 1973 building codes adopted. Remains on the books.
Department of Community Trade and Economic Development, Local Government Division	Community Development Block Grant loan and grant programs		X		Yes	Several of the eight CDBG programs fund projects in eligible communities that improve, repair or rehabilitate housing or infrastructure systems to meet urgent needs or to deal with an imminent threat to public health and safety.
Department of Community Trade and Economic Development, Public Works Board	Public Works Trust Fund – Construction Loans, Emergency Loans (RCW 43.155, WAC 399-30)		X		Yes	Trust fund construction loans allow for rehabilitation and reconstruction of eligible public works systems.
Department of Ecology	Flood Control Assistance Account Program (RCW 86.26, WAC 173-145)	X			Yes	Provides financial assistance to local agencies to prepare comprehensive flood control management plans and flood control maintenance projects.
	Flood Plain Management Act (RCW 86.16, WAC 173-158).	X				Requires development to avoid the floodplain and minimize harm to floodplains and wetlands.

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
	Shoreline Management Act (RCW 90.58, WAC 173-18 and -20).		X		Yes	Citizens passed the Shoreline Management Act in 1971 to restrict development in shoreline areas to "reasonable and appropriate uses" and to protect shoreline resources and aquatic life.
	Coastal Zone Management Act (PL 104-150). Section 306/306A supports Shoreline Management Act.		X		Yes	Grant funds are available to eligible local governments for planning, environmental inventories, land-use designation mapping, and policy development related to shorelines.
	Water Resources Program – Drought Response (RCW 43.83B.400 to -430, WAC 173-166)	X			Yes	Provides emergency water permits, financial assistance and temporary transfer of water rights during a state-declared drought emergency.
	Emergency Agricultural Water Supply Funds (RCW 43.83B.415, WAC 173-166)	X			Yes	Provides grants and loans for emergency water supply projects in declared drought areas to help irrigated crops and fisheries survive.
Department of Natural Resources	Forest Practices Act (RCW 76.09, WAC 222).		X			Among other things, the act requires owners of forestlands to prevent landslides caused by logging or other uses.

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
	Division of Geology and Earth Resources (State Geological Survey)		X			Evaluates geologic hazards, develops hazard maps, conducts damage assessment following disasters, and provides advice on mitigation measures.
	Firewise Program	X				Helps landowners in eligible communities remove trees and brush that pose a fire hazard to homes that border forestlands. Property owners who pay fees to the department for fire protection are eligible to participate.
	Forest Stewardship Program	X			Yes	Helps family forestland owners with hazard reduction training and funding to assist with thinning and other actions to reduce wildfire hazard.
University of Washington, and various partner organizations	Pacific Northwest Seismograph Network		X			Operates network of seismographs whose data help scientists understand Pacific Northwest earthquake hazards and predict volcanic eruptions at Mount St. Helens. Network scientists are active in public outreach and education for these hazards.

Mitigation Strategy

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
Governor's Office	Evaluation of Flood Hazard in Locating State Facilities, and Reviewing and Approving Sewage and Water Facilities and Subdivisions, Executive Order 77-11.	X				Requires state agencies to avoid locating and building state facilities, roads, and campgrounds in floodplains, requires agencies to flood proof existing facilities, and to consider reduction of potential flood damage when reviewing plans for water and wastewater facilities and residential subdivisions and trailer parks.
	State Agency Risk Management, Executive Order 01-05		X			Requires state executive agencies to reduce and minimize loss from tort claims against the state; it includes language that could apply to reducing threats posed by natural hazards through mitigation.
	Sustainable Practices by State Agencies, Executive Order 02-03.		X			Requires state executive agencies to establish sustainability objectives regarding facility construction, operation and maintenance; it includes language that could apply to reducing threats posed by natural hazards through mitigation.
Military Department (Emergency Management Division)	Hazard Mitigation Grant Program	X			Yes	This program, available after a Presidential disaster declaration, funds hazard mitigation plans and cost-effective projects that reduce or eliminate the effects of hazards and/or vulnerability to future disaster damage. Typically, the state provides a portion of the required non-federal match.

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
	Public Assistance Program		X		Yes	This program, available after a Presidential disaster declaration, allows mitigation measures to be designed into projects to repair or restore public facilities damaged by the disaster event.
	Pre-Disaster Mitigation Grant Program	X			Yes	This annual, nationally competitive program funds hazard mitigation plans and cost-effective projects that reduce or eliminate the effects of hazards and/or vulnerability to future disaster damage.
	Flood Mitigation Assistance Program	X			Yes	This program funds flood mitigation plans, provides technical assistance, and funds construction projects that reduce flood risk to insured, repetitive loss properties.
	National Tsunami Hazard Mitigation Program	X			Yes	This program provides tsunami modeling for preparedness planning, mitigation initiatives, and public education; provides warning guidance to local jurisdictions; and facilitates installation of all-hazard alert systems in coastal areas.
	Earthquake Program		X			Provides coordination and oversight of seismic safety programs, supports public education and mitigation planning, and provides tools to support seismic hazard reduction.

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
	HAZUS (Hazards United States)		X			The division provides training and facilitates local and state use of HAZUS to support mitigation planning and development of mitigation strategies for areas at risk to earthquake.
	Volcano Program		X			The division coordinates the efforts of workgroups for each of the state's five volcanoes, and helps in the development of response, preparedness and mitigation initiatives.
Department of Fish and Wildlife	Hydraulic Code (RCW 77.55, WAC 220-110).		X			This law requires development in shorelines of marine and fresh waters of the state to include mitigation measures that protect aquatic habitat and fish. Work also must comply with the State Environmental Policy Act.
Department of Transportation	Highway Bridge Replacement and Rehabilitation Program	X			Yes	Funds repair and rehabilitation of eligible locally owned bridges, to include seismic retrofit and scour mitigation.
	Emergency Relief Program	X			Yes	Funds temporary and permanent repairs to federal-aid roads and bridges damaged by natural disaster. Also funds "betterments" that provide a reasonable assurance of preventing future disaster damage.

Agency	Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X)			Provides Funding for Mitigation Initiatives	Description
		Support	Facilitate	Hinder		
Transportation Improvement Board	Six grant programs for local transportation projects (RCW 47.26, WAC 479)		X		Yes	Grant funds can reimburse local jurisdictions for mitigation items that do not exceed state or federal requirements.
County Road Administration Board	Rural Arterial Program (RCW 46.68, WAC 136-163)		X		Yes	Under Emergency and Emergent Provisions, the program provides funding for temporary or permanent restoration work on rural roads and bridges to pre-disaster condition; it may include reconstruction to current design standards.

Local Capability Assessment

Local governments have policies, programs and capabilities designed to mitigate – or assist in the mitigation of – impacts of hazard events on communities. Each community has its own policies, programs and capabilities, depending upon a number of factors such as size of area and population, and amount of funding available through local resources.

Regardless of its relative size or wealth, each community will have a core set of policies, programs and capabilities at its disposal related to hazard reduction and mitigation – building codes and land use plans and regulations. The tables that follows highlights local capability related to these issues.

Local Capability Assessment

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
Building codes	Adoption of building codes initially was the discretion of individual cities and counties. Passage of the State Building Code Act in 1974 mandated the use of 1973 UBC building codes throughout the state. Since this time, local jurisdictions can make amendments to the code but changes cannot diminish code requirements. The State Building Code Council now adopts building, fire and mechanical codes for the state of Washington. These codes set minimum performance standards for buildings. The council amends the codes to meet state needs, but only if changes improve upon the original codes. The council adopted and amended the 2003 editions of the International Code Council building, residential, mechanical and fire codes published by the International Code Council, and the 2003 edition of the Uniform Plumbing Code published by the International Association of Plumbing and Mechanical Officials. The council also amended the state energy code. Adoption of current building, mechanical, fire, and plumbing codes brings Washington State's building codes to the highest level nationwide and they address the state's seismic hazard.	Since 1974, building codes adopted by the State Building Code Council have been applicable statewide. Counties and cities can amend the state codes, but they cannot diminish the minimum performance standards of the codes. New 2003 building codes / amendments take effect statewide in July 2004. All structures built after that date must comply with the new building codes, which includes provisions for the state's seismic hazard.	Before adoption of a statewide building code in 1974, there was a wide variation of minimum standards, as well as variation in use of requirements to address hazards including earthquake and winter storm. The state building code is updated regularly to account for new knowledge of hazards and changes in construction methods and materials, and to incorporate new designs and technologies. Despite 30 years of uniform building codes, consistent enforcement remains a problem. Local building departments are responsible for enforcing federal, state and local codes related to building construction projects. A study of structural failures following the December 1996 – January 1997 winter storms recommended more education and better communication for all parties involved in construction of buildings, including construction plans examiners and local building inspectors.

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
Land-use planning	The Planning Enabling Act provides the framework for guiding and regulating the physical development of a county or region. Comprehensive plans prepared under this act must include a land-use element to designate the general distribution, location and extent of various land uses (i.e., agriculture, housing, commerce, industry, education, recreation), and a circulation element with the location, alignment and extend of various transportation routes. Optional elements of comprehensive plans prepared under this act cover conservation of natural resources, use of solar energy, recreation, transportation, public services and facilities, housing, renewal and redevelopment, and capital improvements.	This land-use planning law applies to all local jurisdictions in the state – including counties, cities and towns, school districts, public utility districts, housing authorities, and port districts. As a practical matter, only the state's smaller, slow-growing, rural counties are planning under this state law.	The Planning Enabling Act provides the basic framework for local jurisdictions to develop land-use plans and development regulations. Planning under this law is not as comprehensive as required by the Growth Management Act (see below). It does not address ties between transportation and housing, and other factors required under GMA planning. The Planning Enabling Act is silent on the need for comprehensive plans to address hazard avoidance or hazard reduction. Local compliance with state requirements of this law is better than under the much more comprehensive Growth Management Act.

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
Critical areas protection	The Growth Management Act of 1990 requires all cities, towns and counties in the state to identify and protect the functions and values of critical areas. The act defines critical areas as frequently flooded areas (including areas prone to tsunamis), geologically hazardous areas (including areas prone to erosion, landslide, seismic activity, volcanic activity, etc.), fish and wildlife habitat conservation areas, wetlands, and recharge areas for aquifers used for potable water. The concept of protecting the function and values of critical areas includes protecting humans from flood and geologic hazards. Critical areas regulations must be reviewed and evaluated every seven years; amendments can be made annually.	All counties, cities and towns in the state must develop regulations to designate and protect critical areas. As of November 2003, 10 small cities had not yet adopted critical area regulations, and the regulations of four counties were not compliant with state law. Counties, cities and towns are required by state law to update their critical area regulations in the next three years.	Cities and counties since 1995 must use best available science to develop policies and regulations to protect the function and values of critical areas. Most critical area regulations, however, date to the early 1990s before best available science became a requirement, and do not consider current hazard information. Among the issues facing local jurisdictions preparing critical area regulations include balancing the use of scarce available resources for detailed planning and regulation development versus providing other services, and balancing the protection of critical areas with rights of owners to use or develop their property. Some believe that critical area protection requires communities to prevent development on too much land. Most jurisdictions have prepared critical area regulations that meet minimum state standards, but their effectiveness varies, depending upon local resources and local political considerations.

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
Growth Management Act land-use planning	The Growth Management Act, which became law in 1990, builds on the Planning Enabling Act by requiring all cities and counties in the state to: • Designate and protect critical areas (see above). • Designate farmlands, forestlands and other natural resource areas. • Determine that new residential subdivisions have appropriate provisions for public services and facilities. Additionally, fully planning counties (and their cities) must agree on countywide land-use policies, plan for growth within designated urban growth areas, identify lands for public purposes and essential public facilities, and adopt development regulations to carry out comprehensive plans. Comprehensive plans are built around 14 goals, and must provide for 20 years of growth and development needs. Plans must include elements on land use, utilities, housing transportation, capital facilities, rural lands, and shorelines. Comprehensive plans must identify hazard prone areas, and include policies to reduce vulnerability of housing, public facilities, transportation and utilities to identified hazards. Plans can address hazard reduction or hazard avoidance in one of two ways – through the required planning elements or through a separate but optional natural hazard reduction element.	Counties that meet one of the following criteria must fully plan under the Growth Management Act: 1) Counties with a population greater than 50,000 and: • Before May 1995 had a 10 percent increase in population in the previous 10 years, OR • After May 1995 had a 17 percent increase in population in the previous 10 years. 2) Counties whose population increased 20 percent in the previous 10 years. Counties that do not fit the above criteria can voluntarily choose to plan under the Growth Management Act.	Twenty-nine of the state's 39 counties are fully planning under GMA; 217 cities within these counties also must fully plan. Land-use plans and regulations developed under GMA requirements are much more comprehensive than those developed under the Planning Enabling Act. Among the issues facing local jurisdictions preparing GMA plans and regulations include balancing the use of scarce available resources for detailed planning and regulation development versus providing other services, and balancing the protection of critical areas with rights of owners to use or develop their property. Most jurisdictions have prepared land-use plans and regulations that meet minimum state standards, but their effectiveness varies, depending upon local resources and local political considerations.

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
Floodplain management	Three state laws govern floodplain management: RCW 86.12, Flood Control by Counties, gives counties the power to levy taxes, condemn properties and undertake flood control activities directed toward a public purpose. RCW 86.26, State Participation in Flood Control Maintenance, established the Flood Control Assistance Account Program (FCAAP) to provide state funding for local flood hazard management planning and implementation efforts. RCW 86.16, Floodplain Management, states that prevention of flood damage is a matter of statewide public concern and placed regulatory control within the responsibilities of the Department of Ecology. The state's floodplain management law allows local governments to adopt floodplain management requirements that exceed National Flood Insurance Program requirements, and requires local governments to enforce restrictions prohibiting new residential construction or reconstruction of substantially damaged residential structures in mapped floodways. Allowed under certain circumstances is reconstruction or replacement of substantially damaged farmhouses in the floodway.	RCW 86.12 applies to all counties of the state. Participation in the Flood Control Assistance Account Program requires local jurisdictions to participate and be in good standing in the National Flood Insurance Program, and their activities must be approved by the Department of Ecology in consultation with the Department of Fish and Wildlife. Grants are available for up to 75 percent of the cost of flood hazard management planning, and 50 percent for the cost of flood damage reduction projects, including purchase of flood prone properties, limited flood mapping, and flood warning systems. Flood damage reduction projects must be consistent with local comprehensive flood hazard management plans. Emergency grants are available to respond to unusual flood conditions.	Despite a lack of funding, communities continue making floodplain management a priority. The State Flood Control Assistance Account Program is funding 13 local projects in the 2003-05 biennium. Grants for these projects totals less than $1 million. This compares with 37 projects receiving nearly $3 million in the 2001-03 biennium. Washington has 25 communities participating in the Community Rating System. King County has a CRS rating of 4, one of only three jurisdictions in the nation with a 4 or higher rating. Many communities have created innovative floodplain management techniques, such as: • Higher freeboard standards than federal regulations require (Everett and Chelan Co.). • Prohibiting fill for structural support of residential buildings in floodplains (Skagit and King Cos.) • Prohibiting new residential structures in the floodplain (Thurston Co.) • Exceeding federal standards for floodways (Pierce Co.). • Providing storage to compensate for filling floodplains (many localities).

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
Shoreline management	A public referendum adopted the Shoreline Management Act in 1971 to prevent the "inherent harm in an uncoordinated and piecemeal development of the state's shorelines." Implementing regulations were updated in late 2003 for the first time in 30 years. The act covers three basic policy areas: 1. Accommodation of reasonable and appropriate uses. The act prefers uses consistent with control of pollution and prevention of damage to the natural environment, or uses that are unique to or dependent upon shorelines. 2. Protection of the shoreline environmental resources. The act intends to protect shoreline natural resources including the land and its vegetation and wildlife, and the waters of the state and their aquatic life, against adverse impacts. 3. Protection of the public's right to access and use the shorelines. The act requires local shoreline master programs to include provisions for public access and recreational opportunities at publicly owned shorelines. State shoreline regulations were updated in 2003; they are more comprehensive than before and include a greater basis in science; they take into consideration protection of critical resources and physical and biological processes and functions.	The Shoreline Management Act applies to 39 counties and more than 200 cities with shorelines created from: • Marine waters (Pacific Ocean, Strait of Juan de Fuca, Puget Sound). • Streams and rivers with a mean annual flow greater than 30 cubic feet per second. • Lakes and reservoirs greater than 20 acres in areas. • Upland areas called shorelands that extend 200 feet landward from the edge of these waters. • Biological wetlands and river deltas, and some or all of the 100-year floodplain when associated with one of the above. The act establishes a balance of authority between local and state government. Cities and counties are the primary regulators.	Unlike land-use plans prepared under the Growth Management Act, presumed valid upon local adoption, local shoreline regulations must be approved by the Department of Ecology before they are considered valid and implemented. Strength of local shoreline regulations are avoiding development on unstable shoreline slopes and in frequently flooded areas. Obstacles to successful development of shoreline master plans include local political will to develop regulations sufficient to protect shorelines via buffers, setbacks, and appropriate design criteria. With adoption of new state regulations for local shoreline master plans in December 2003, all communities must revise their master plans in the next 10 years. The Department of Ecology made $2 million in planning grants available to 12 early adopters this biennium and $4 million each biennium through 2014 to fund planning and regulation development efforts.

Existing Local Policies			
Policy	***Description***	***Applicability***	***Effectiveness***
State Environmental Policy Act	The State Environmental Policy Act was adopted in 1971 to provide a regulatory framework for state and local agencies to address environmental issues in their decisions. The act provides information to agencies, applicants and the public to encourage the development of environmentally sound proposals. The environmental review process involves the identification and evaluation of probable environmental impacts and the development of mitigation measures that will reduce adverse impacts. SEPA was modeled after the National Environmental Policy Act. The act ensures that environmental values are considered during decision making by state and local agencies. When the act was adopted, the Legislature identified four primary purposes: 1. To declare state policy which will encourage productive and enjoyable harmony between man and the environment. 2. To promote efforts which will prevent or eliminate damage to the environment. 3. To stimulate the health and welfare of man. 4. To enrich the understanding of the ecological systems and natural resources important to the state and nation.	The law requires local governments to: • Utilize a systematic, interdisciplinary approach that ensures the integrated use of natural and social sciences and the environmental design arts in planning and decision-making that may affect the environment. • Ensure that environmental amenities and values are given appropriate consideration in decision making along with economic and technical considerations.	SEPA provides a process to give local decision makers information on environmental protection and hazard reduction related to new development. In its early years, this law was the only mechanism that provided for mitigation from natural hazards such as flooding and landslides. Today, critical area regulations required by the Growth Management Act have taken much of this responsibility. SEPA's effectiveness depends upon its application by local jurisdictions. Many communities face the issue of balancing environmental protection with rights of owners to use or develop their property. Larger and more sophisticated counties use SEPA in combination with their own critical area regulations to provide a holistic approach to environmental protection and hazard avoidance. Thurston County, for example, uses SEPA to fill gaps in local regulations related to mitigating hazards. However, this county is the exception rather than the rule throughout the state. Communities that take the SEPA process seriously can use it to improve their mitigation efforts. A checklist helps communities determine the environmental impact of a proposed development.

Mitigation Action Agenda

In developing the goals, objectives and action items of the Mitigation Action Agenda (matrix begins on page 24), the State Hazard Mitigation Advisory Team considered the following:

- The Governor's goals for state government. In 2002, Governor Locke established a new set of priorities for state government and delivery of services to help the state deal with a projected deficit of $2 billion for the 2003-2005 biennium. One of the critical outcomes the Governor identified in what is called the Better Government initiative is: "improve the safety of people and property." Among the Governor's goals for public safety are reducing injury and loss of life and property due to natural or human caused disasters, increasing readiness to respond to emergencies, and increasing citizens' confidence in the safety of their communities.

- The mission of the State Comprehensive Emergency Management Plan. The mission of the State Comprehensive Emergency Management Plan is to "minimize the impacts of emergencies and disasters on the people, property, environment, and economy of Washington State." The State CEMP guides the emergency management functions and establishes the emergency management responsibilities of the agencies of state government.

- The vision and mission of the strategic plan of the State Emergency Management Division (July 25, 2003): The vision of the division is for "a disaster resistant Washington." The mission of the division is the same as the mission of the State CEMP – to "minimize the impacts of emergencies and disasters on the people, property, environment and economy of Washington State."

- The issues and priority recommendations of the *2000 Washington State Mitigation Strategy,* and recommendations of the *Hazard Mitigation Survey Team Report, Nisqually Earthquake, February 28, 2001*.

- The mitigation goals and objectives of the state agencies that participated in the development of this plan and of the goals and objectives from approved local plans. Each of the 30 state agencies participating in the state plan, and the communities developing local plans, established agency- or community-specific goals and objectives for their mitigation activities and initiatives. A synopsis of these goals and objectives was prepared, and themes identified for the advisory team to consider for the state plan as a whole.

- Addressing the state's priority hazards – identified as earthquake, flood, severe storm, and wildland fire. (See Risk Assessment introduction, Tab 7, pages 6-8, for more information.)

Mitigation Strategy

Out of the State Hazard Mitigation Advisory Team's discovery and deliberation process, it developed the following goals for hazard mitigation. The goals represent a vision for hazard mitigation and disaster resistance for the state government of Washington.

State Mitigation Goals

1. Protect Life
2. Protect Property
3. Promote a Sustainable Economy
4. Protect the Environment
5. Increase Public Preparedness for Disasters

About the State's Mitigation Action Agenda

Prioritizing Mitigation Actions

The Mitigation Action Agenda represents the mitigation actions and initiatives identified by the State Hazard Mitigation Advisory Team for the state government of Washington to pursue during the next three years. (State agency mitigation actions and initiatives are in the individual agency annexes, Tab 11 of this plan). This action agenda was reviewed by the state agencies participating in the state plan, other non-participating but interested state agencies, local emergency management organizations, and others before being submitted to the Governor's Emergency Management Council and the Governor's Office for approval and promulgation.

The identified mitigation actions and initiatives in both this section and in the state agency annexes are not in a 1-2-3 priority order, nor are they categorized as being of high, medium or low priority. The reason for this is the philosophy of the State Hazard Mitigation Program to foster holistic state agency and local programs that make hazard mitigation a way of doing business. Rather than encouraging eligible agencies to just develop a list of planning and construction projects for federal hazard mitigation grants when they become available, the state program encourages agencies and organizations to include mitigation as they consider construction and location of new buildings, make existing facilities safer, and as they develop strategic plans for organization operations.

The State Hazard Mitigation Program also does not target available resources to a handful of local jurisdictions or to just a few hazards. The reason for this is two-fold.

1. Washington has a home-rule style of governance. This means that local governments are responsible for maintaining control of government services and actions at the lowest possible level, rather than the state providing top-down direction to control decisions that affect local citizens.

2. Pouring most or all available resources into a small area (three to five flood-prone counties, for example) or for limited mitigation tasks (for elevating or purchasing of repetitive loss properties, for example) is politically untenable and it

discourages non-funded jurisdictions from developing hazard mitigation programs.

Rather than establish project priorities, the State Hazard Mitigation Program requires any mitigation project proposed for funding through the federal hazard mitigation grant programs administered by the State Emergency Management Division (including state agency projects) to:

1. Support the goals and objectives of the State Hazard Mitigation Plan and its mitigation strategy's goals and objectives.

2. Reduce identified hazard risk.

3. Prevent repetitive losses.

4. Protect critical areas, including frequently flooded areas and geologically hazardous areas.

Proposed state projects must compete with projects proposed by eligible local governments; this ensures that federal grant-funded state and local projects address state hazard mitigation priorities.

Addressing Cost-Effectiveness, Environmental Soundness, Technical Feasibility

Any state government construction project – regardless of potential funding source – has to be cost-effective, technically feasible and meet all appropriate federal, state, and local environmental laws and regulations before it is started.

State government projects funded by federal hazard mitigation grant programs administered by the State Emergency Management Division have to meet specific criteria related to cost-effectiveness, environmental soundness, and technical feasibility. These criteria are established in the state's hazard mitigation programs administrative plan found in Tab 10, and described in detail in Enhanced Plan – Comprehensive State Hazard Mitigation Plan, Tab 9, sections entitled *Project Implementation Capabilities*, pages 3-7, and *Program Management Capability*, pages 9-20.

Mitigation Goal #1 – Protect Life

Protecting people from harm is one of the primary responsibilities of state government. Many state laws contain a declaration of purpose that includes protecting public health and safety. For example, the Washington Emergency Management Act [RCW 38.52], the Legislature declares that emergency management is a necessary function of state government "…to protect the public peace, health and safety, and to preserve the lives and property of the people of the state…" from the increasing possibility of the occurrence of disasters of unprecedented size and destructiveness [RCW 38.52.20(1)].

Washington has nine natural hazards that threaten life and property – avalanche, drought, earthquake, flood, landslide, severe storm, tsunami, volcanoes, and wildland fire. The threat each poses to human life varies and depends on many factors, such as knowledge of the hazard, locations of areas most at risk, frequency of hazard event occurrence, whether and how many people live in hazard zones, the availability of warning systems, whether first responders have necessary training and equipment, and adequacy of building codes and building inspections.

Warning systems: Communication systems provide urgent information on an actual or potential hazard event to people who live on or near hazard areas and to emergency responders can be critical to protecting lives. A number of warning systems exist in Washington to inform decision makers, emergency responders, and the public about various types of impending or occurring hazard events.

One system detects and then warns people living in the Carbon and Puyallup River valleys northwest of Mount Rainier of a potential lahar; the U.S. Geological Survey and Pierce County developed the system in the late 1990s because the volcano is one of the most dangerous in the nation. The estimated time between detection of a large lahar by the system and its arrival in the town of Orting (population 3,760) is about 40 minutes; the lahar would affect larger communities of Sumner (8,504), Puyallup (33,011), and Auburn (40,314) within 90 minutes. While the system covers the drainage basins considered most at-risk to a future lahar, thousands of people live in the valleys of other rivers that flow off the mountain; about 150,000 people live on its former lahar deposits. The state's other four volcanoes potentially threaten another 150,000 people who live on former lahar deposits.

A second, year-old system originally designed to warn coastal residents of an approaching tsunami, is expanding into an all-hazard warning system. Ocean Shores in July 2003 installed a prototype, using the warning capabilities of NOAA Weather Radio and a loudspeaker that reaches people a half-mile away. A second system, installed in Port Townsend in September 2003, provides homeland security warnings in the local waterfront. Because of its all-hazard warning capability, the system's name is AHAB, short for All-Hazard Alert Broadcasting radio system. Installations are planned for the Elliott Bay waterfront in Seattle at risk to tsunami; Orting and Puyallup, as part of the Mount Rainier lahar warning system; and on the Makah and Quileute Indian reservations at risk to tsunami.

A number of other warning systems exist in the state, including the system used by the National Weather Service to disseminate information on floods and potentially dangerous weather systems. Warning systems, when combined with public education programs, provide communities and their decision makers with a significant tool to save lives from an impending hazard event.

Several local and state laws include hazard reduction components. The primary example is the Growth Management Act, which requires all towns, cities and counties to identify critical areas – including frequently flooded areas and geologically hazardous

areas – and to establish regulations to protect and prevent development on them. All 39 counties and 265 of the state's cities and towns have adopted critical area regulations.

The Growth Management Act provides a second vehicle for local communities to identify and address hazards through an optional element in their comprehensive land-use plans that addresses hazard reduction. While some communities have used this element in conjunction with critical areas ordinances to document hazard areas and develop strategies to prevent inappropriate development in those areas, more should include this approach in their hazard reduction efforts. Resources are available to help communities with this effort, including guidance to help communities prepare hazard reduction elements for their land-use plans.

Much of the housing development in wildland fire interface communities is designed to the same standards as housing in urban areas. Most interface homes are in an environment where adequate water, roads, street signs, house numbers, and quick fire response often do not exist. In many instances, local regulations that appropriately address local wildfire hazard conditions can improve community safety.

Vulnerable populations: Washington has significant populations of people potentially at greater risk to hazard events because of the age of their housing, they are poor or disabled and unable to prepare adequately for such events, or they attend school in older buildings that have not been strengthened against impact of hazards. For example:

- A significant percentage of housing units in Washington – more than six of every 10 – was built before 1980. These homes are less likely to have been built to current standards for hazards such as floods, high winds, snow loads, and earthquake, making them more vulnerable to hazard events.

- A number of populations have circumstances that make it difficult for them to have adequate resources to take appropriate action to prevent damage or to prepare in advance of a hazard event. More than 10 percent of the state's residents live below the poverty line, and 11 percent are over the age of 65. One out of every six people of working age reports a disability, and less than 60 percent of them have a job. Additionally, one of every seven people speaks a language other than English as their primary language at home, making it more difficult for them to understand the risks posed by our natural hazards and the steps they should take to prepare.

- Many of the schools housing the state's 1.1 million K-12 students are older structures built before seismic design requirements were fully developed. This presents a substantial life safety and injury risk to children as well as school staff and visitors. While school districts are strengthening buildings as part of capital improvement plans and taking nonstructural mitigation efforts, an accurate inventory of schools vulnerable to earthquake hazards does not exist. The Office

of Superintendent of Public Instruction surveyed districts in 1996 to ask about seismic safety of school buildings; about two-thirds of the 296 districts responded. The survey found buildings housing 250,000 students were vulnerable to earthquake and needed retrofitting; only one of five districts had completed a study to determine their vulnerability to seismic risk. Further, the survey found that buildings housing 270,000 students were vulnerable to nonstructural hazards.

- Even students in the state's higher education system are at risk. A January 2003 report by the Joint Legislative Audit and Review Committee shows that 10 percent of the square footage at the state's colleges and universities needs immediate improvement – these structures exceed their expected life cycle, have major systems in poor condition or are failing, and require immediate attention to prevent or mitigate impacts on their function. The average age of structures is 36 years system wide, with one quarter of the square footage 50 years or older. The current backlog of preservation work to restore facilities to support their current use is $1.3 billion. This amount does not include modernization projects to upgrade or replace obsolete systems or to address health and life safety issues such as seismic retrofits or upgrades. The report states that most institutions do not have data specifically focused on the health and safety related preservation backlogs.

Building codes and inspections: Local building departments are responsible for enforcing federal, state and local codes related to building construction projects. A study of structural failures following the December 1996 – January 1997 winter storms recommended more education and better communication for all parties involved in construction of buildings, including construction plans examiners and local building inspectors.

Building code certification for plans examiners and building inspectors assures that the individuals responsible for reviewing building projects for code compliance complete a course of continuing education. Education is critical to consistent and effective application of the codes, resulting in compliant buildings designed and built to mitigate hazards. The state building code is amended on a regular cycle to incorporate new knowledge about hazards, to address changes in construction methods and materials, and to incorporate new designs and technologies. Certification incorporates the changes adopted in new codes and provides a structured method to educate the code enforcement community. The organizations that write model building codes provide a rigorous program of training and certification for their codes.

The focus of the action agenda that follows is protecting life from the impact of hazard events.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
1.1 – Improve systems that provide warning and emergency communications.	1.1.1 – Develop a plan and seek funding to expand the pilot All-Hazard Alert Broadcasting (AHAB) radio local warning system statewide.	State Emergency Management Division	1 year	Existing state resources	Communities are seeking inexpensive ways to expand warning and emergency communication with the public.	Expanding AHAB improves local and state capability to protect life.
	1.1.2 – Help National Weather Service expand NOAA Weather Radio coverage, especially in high terrain areas.	State Emergency Management Division, with the National Weather Service	Ongoing	Existing state resources	Improved coverage increases the number people able to receive warning of potentially life threatening weather events.	Expanding this system improves local and state capability to protect life.
	1.1.3 – Investigate the feasibility of developing a real-time landslide warning system along key transportation routes.	Department of Natural Resources – Division of Geology and Earth Resources, Department of Transportation, and State Emergency Management Division with US Geological Survey	6-8 Years	Resources to be determined	Landslides have closed Interstate 5, major N-S rail line used by Amtrak, and other corridors used by large numbers of people.	Such a system would help protect people traveling over the state's essential transportation routes vulnerable to landslide.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	1.1.4 – Develop a plan to install satellite-based, real-time tsunami and earthquake information systems in county and city emergency operation centers.	Department of Natural Resources – Division of Geology and Earth Resources and State Emergency Management Division with US Geological Survey and National Oceanic and Atmospheric Administration	Pilot sites installed mid 2004; 1 year to develop strategy to expand system	NOAA – National Tsunami Hazard Mitigation Program, US Geological Survey, and existing sources	Local and state responders need better information on areas most seriously damaged by an earthquake or tsunami immediately after an event.	System allows communities to target resources for immediate life-safety actions and long-term mitigation initiatives to areas most seriously impacted.
	1.1.5 – Develop maps with information on land ownership, response boundaries, roads, and other features to allow fire fighting agencies to adequately prepare for response to wildland fires in interface areas.	Department of Natural Resources – Resource Protection Division	Ongoing	Existing resources	Many interface fire agencies do not have maps showing current ownership, responsible fire agency, physical features or pre-fire plans.	Lack of maps with adequate information can inhibit effective fire protection and lead to an ineffective initial attack by fire fighting agencies.
1.2 – Develop or amend laws so they effectively address hazard mitigation.	1.2.1 – Develop and promote comprehensive and cost-effective recommendations for local land-use plans and ordinances that reduce the risk of natural hazards, including wildland fire in interface areas.	Department of Natural Resources – Resource Protection Division, with the Department of Community Trade and Economic Development – Growth Management Division	Ongoing	Existing state resources	Development in interface areas are at greater risk because they often lack adequate water, roads, street signs, house numbers and quick fire response found in urban areas.	Regulations that address interface fires and other hazards increase the probability that lives and property will be protected and saved.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	1.2.2 – Expand the number of local governments that include hazard reduction planning into their land-use plans and development regulations.	Department of Community Trade and Economic Development – Growth Management Division, with State Emergency Management Division	Ongoing	Existing state resources	Development in hazard areas places more people and structures at risk than is necessary.	Expanding hazard reduction efforts will protect more people from hazards.
	1.2.3 – Develop and promote recommendations for local ordinances to prevent fires in interface areas resulting from fireworks, debris burning, campfires, and other human-caused sources.	Department of Natural Resources – Resource Protection Division, with Department of Community Trade and Economic Development – Local Government Division and Washington State Patrol – Office of the State Fire Marshal	Ongoing	Existing state resources	Development in interface areas are at greater risk because they often lack adequate water, roads, street signs, house numbers and quick fire response found in urban areas.	Regulations that address interface fires and other hazards increase the probability that lives and property will be protected and saved.
	1.2.4 – Identify and resolve conflicts in laws and regulations that currently prevent effective fuel management in wildland fire interface areas.	Department of Natural Resources – Resource Protection Division, with Department of Community Trade and Economic Development – Local Government Division	Ongoing	Existing state resources	Effective fuel management often conflicts with laws such as the Clean Air Act, resulting in accumulation of debris on the forest floor.	Reducing conflicts in laws will make it easier to mange forest fuels, prevent interface fires and protect the public.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	1.2.5 – Request the Governor's Office prepare an executive order requiring state agencies to include hazard mitigation actions into owned and leased structures upon first occupancy, into renovation of existing owned structures, and into the design or redesign of interior work spaces.	State Emergency Management Division, with Department of General Administration, Governor's Emergency Management Council, and Office of Financial Management – Executive Policy Office	2 years	Existing state resources	An Executive Order places greater emphasis mitigating hazards and improving the disaster assistance of state government.	Improving disaster resistance of state-owned structures will protect the lives of state workers and those who visit or reside in those facilities.
1.3 – Reduce the impacts of hazards on vulnerable populations	1.3.1 – Help K-12 schools and state colleges and universities develop vulnerability assessments, mitigation plans and mitigation projects to improve safety in their most vulnerable buildings.	State Emergency Management Division, with Office of Superintendent of Public Instruction, public schools and higher education institutions	Ongoing	Existing local and state resources, federal mitigation grant funds	A significant percentage of K-12 and college students may be in seismically vulnerable buildings; funding for retrofits is lacking.	Improving the structural integrity of K-12 schools and facilities in the higher education system will improve the safety of hundreds of thousands of students.
	1.3.2 – Develop a pilot project that provides funding or incentives for non-structural seismic mitigation in low-income households and for housing that is vulnerable to the effects of natural hazards.	Department of Community Trade and Economic Development – Housing and Local Government Divisions, with State Emergency Management Division	Project underway in Seattle; additional projects, fund sources – 3 years	Existing local and state resources, federal mitigation grant funds	A significant number of households live in housing build before modern building codes and are potentially at risk to hazard events.	Improving the structural integrity of vulnerable homes and securing contents will improve the safety of households who otherwise might not be able to afford the work.

Goal #1 – Protect Life						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
1.4 – Strengthen state and local building codes and enforcement.	1.4.1– Pursue certification of building inspectors through code organizations and provide continuing education to improve the quality of building inspections.	State Building Code Council, with Washington Association of Building Officials	2 Years	Building Permit Fees	Additional education and training of building inspectors will improve inspections.	Improving building inspections will improve the integrity of structures and protect occupants during hazard events.
1.5 – Train emergency responders.	1.5.1 – Deliver standardized training on wildland fires to firefighters responding to fires in interface areas.	Department of Natural Resources – Resource Protection Division, with Washington State Patrol – Office of the State Fire Marshal, and the state's fire services	Ongoing	Existing state and federal resources	Training will better prepare urban firefighters, more accustomed to structure fires, for wildland interface fires.	Better-trained firefighters result in safer, better-protected communities.

Mitigation Goal #2 – Protect Property

Mitigation actions taken to protect life often also protect property, especially actions with a structural element, such as those designed to strengthen a building from the forces of violent ground shaking, high winds, or snow loads. For example, the new suite of IBC international building, mechanical and fire codes that take effect in July 2004 take into consideration the state's seismic risk, which grows with the completion of nearly every geologic research project. The purpose of these codes is to help investors and communities design and construct buildings that resist the forces of nature and keep occupants safe. And, the state's land-use laws require local communities to keep buildings out of the most hazardous areas.

Hazards such as earthquakes, floods, and landslides are likely to lead to major disruption of transportation corridors and facilities, lifelines (including water, sewer and power), and facilities critical to the ongoing operation of state government or to providing essential services to people in need such as the poor, unemployed, disabled, or mentally ill. The same is true for buildings that house large numbers of people such as schoolchildren and college students, or provide important public services such as police, fire protection or health care. Critical facilities identification has improved with the advent of homeland security, but initiatives to prioritize and protect such facilities from the effects of natural hazard events have been lacking.

Many older fire stations and hospital buildings are vulnerable to earthquake, and, as stated above, the number of schools vulnerable to earthquake is unknown. The billion-dollar backlog of work identified to preserve buildings of the state's colleges and universities does not take into account work needed to upgrade and protect aging facilities from earthquakes and other damaging hazards. When a series of storms affect the state – such as those during the winter of 1996-97 that combined rain, ice, snow and wind in back to back events – repeated and prolonged utility outages can be expected as well as disruption to transportation corridors and facilities. Backup power and telecommunication systems are necessary in facilities used to provide essential public services that must remain available when hazard events adversely affect communities and their vulnerable populations.

The focus of the action agenda that follows is protecting property from the impact of hazard events.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
2.1 – Protect critical assets.	2.1.1 – Prioritize structural and non-structural retrofits for critical state-owned facilities based on their vulnerability to natural hazards.	Department of General Administration	3 Years	Existing state resources, capital budget funds	Prioritizing will address the most vulnerable structures first.	Retrofitting facilities based on their vulnerability will preserve important state buildings, as well as protect their records, systems and occupants from hazard events.
	2.1.2 – Develop a pilot project that analyzes vulnerability of various school construction types to earthquake damage and recommend mitigation measures for each construction type.	State Emergency Management Division, with the State Building Code Council, Office of Superintendent of Public Instruction, and local school districts	1 Year	Existing resources	Project provides school officials with more information on the EQ hazard they face and mitigation measures they can take.	Recommending mitigation measures allows school officials to make better decisions on how to preserving their buildings and protect students, staff and visitors.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.1.5 – Develop a plan to examine the vulnerability of transportation infrastructure and lifelines along the Interstate 5 corridor from Vancouver, B.C., to Portland, OR, and the Interstate 90 corridor from Seattle to Coeur d'Alene, ID, using the recently completed Port to Port Transportation Corridor Earthquake Vulnerability Study as a model. The plan should include strategies to obtain funding for this work.	State Emergency Management Division, with Department of Transportation and others	3 years	Existing resources	When completed, project will expand knowledge of decision makers about the vulnerability of the state's most critical transportation infrastructure and lifelines.	Understanding vulnerability will help frame discussion by decision makers on how to preserve and protect assets critical to the economy of the state from hazard events.
2.2 – Protect and preserve facility contents.	2.2.1 – Develop a pilot project that provides funding or incentives for non-structural seismic mitigation in facilities that serve vulnerable populations (e.g., children, elderly, low income).	State Emergency Management Division, with Department of Community Trade and Economic Development – Local Government Division, Department of Social and Health Services, and Department of Health	3 years	Existing and future state EQ program resources, possibly mitigation grant funds	A significant number of students and people living in institution settings may be in buildings at risk to ground shaking from earthquakes.	Securing contents will protect them from damage and improve the safety of vulnerable populations in schools and institutions.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.2.2 – Help state agencies and the state's colleges and universities assess the seismic safety of facilities in high-risk areas and develop recommendations to mitigate seismic hazards.	Department of General Administration and State Emergency Management Division, with state agencies and higher education institutions	3 years	Existing resources	A significant percentage of state workers, visitors and residents of state facilities, and college students may be in seismically vulnerable buildings; funding for retrofits is lacking.	Improving the structural integrity of general state government and higher education facilities will improve the safety of hundreds of thousands of people.
	2.2.3 – Encourage increased funding to speed up mitigation of identified seismic hazards in vulnerable state agency facilities and the state's colleges and universities.	State Emergency Management Division, Department of General Administration, and Higher Education Coordinating Board	3 years	Existing resources	The state has a billion-dollar backlog of deferred maintenance and other work to address life-safety issues of buildings in the higher education system.	Speeding up actions to protect vulnerable buildings will improve protection of state assets and the people who work, live, visit or study in them.
	2.2.4 – Develop a real-time monitoring program (SHAKECAST) for critical state bridges and make the data available for use in regional shake maps.	Department of Transportation and University of Washington	1 Year	Existing program resources	Real-time data sensors help managers to make decisions on structural integrity mitigation measures following an earthquake.	Data improves operational capability of emergency managers following an earthquake and helps engineers develop mitigation measures for bridges and lifelines.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
2.3 – Reduce repetitive losses, including those caused by flooding.	2.3.1 – Help communities identify repetitive loss areas and obtain potential funding for mitigation in those areas.	Department of Ecology – Floodplain Management, Department of Natural Resources, with State Emergency Management Division	Ongoing	Existing resources, including Flood Control Account Assistance Program and mitigation grant programs	Identifying repetitive loss areas and properties helps communities develop a strategy to reduce future hazard losses.	Retrofitting, elevating or removing repetitive loss properties from known hazard areas protects property and lives as well as preserve personal, state and federal financial resources.
	2.3.2 – Streamline the permitting and funding processes for flood damage reduction and stream improvement projects.	Department of Ecology – Floodplain Management, Department of Fish and Wildlife, and Governor's Office of Regulatory Assistance	Permitting – Ongoing; Funding – 3 Years	Existing resources	Allows important damage reduction strategies to be completed more quickly.	The quicker flood improvement projects are completed, the less property damage future flood events will cause.
	2.3.3 – Update guidelines for comprehensive flood hazard management plans, the state model flood damage prevention ordinance, and policy guidance to reduce flood losses.	Department of Ecology – Floodplain Management	2 Years	Additional state resources required	Updated plans, ordinances and policies will take into account current land-use regulations and the status of development in hazard-prone communities.	Up-to-date planning guidelines, policy guidance and model flood ordinance will lead to improved local strategies to prevent property damage caused by flood.

Goal #2 – Protect Property						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	2.3.4 – Encourage communities to record high water marks to improve or update flood maps or develop other measures to reduce flood damage.	Department of Ecology – Floodplain Management	Ongoing	Existing resources	Recording high water marks from flood events will allow for development of up-to-date flood maps.	Better information on past flood events will improve decisions on floodplain management and strategies to protect lives and property.
	2.3.5 – Seek additional resources to expand the Flood Control Assistance Account Program.	Department of Ecology – Floodplain Management, with Emergency Management Council	Ongoing	Additional resources required to expand FCAAP	Program resources were cut in half for 2003-05 state budget due to revenue shortfall.	FCAAP supports local planning and projects to reduce property damage caused by flood.
	2.3.6 – Establish database to record effectiveness of hazard mitigation projects.	State Emergency Management Division	2 Years	Existing resources	Existing state process for collecting and storing such information is ineffective and time consuming.	Understanding effectiveness of existing mitigation projects will improve the process of developing and selecting new projects.

Mitigation Goal #3 – Promote a Sustainable Economy

Besides considerable damage and impact to human life, hazard events can cause tremendous disruption to local and state economies. They can disrupt transportation routes, air and water ports that business relies upon for receipt and delivery of goods, cause physical and inventory damage, cause utility outages that disrupt production, prevent employees from reaching their work places, and prevent emergency personnel from responding to essential community needs.

Take the 1980 eruption of Mount St. Helens, for example. Besides the 57 deaths, scores of injuries, and hundreds of homes it destroyed, the eruption blew down 4 billion board feet of timber and ash fall destroyed crops in the state's most productive croplands. It damaged more than 185 miles of highways and roads and 15 miles of railways, and disrupted air travel in Eastern Washington for weeks. The eruption contributed to the loss of hundreds of jobs and it crippled tourism in the area for months. Accurate cost figures of the economic impact and damage caused by the eruption are difficult to determine. Estimates of economic loss range from $1 billion to $3 billion. Disaster relief programs spent another $951 million to repair damage to individuals and public agencies.

Winter storms in February 1996 and December 1996-January 1997 created significant disruptions to the state's transportation system. The February 1996 event generated landslides that damaged or destroyed nearly 8,000 homes, and closed traffic along major highways for several days. The landslide with the greatest impact blocked Interstate 5 and the state's main north-south rail lines three miles north of Woodland, Cowlitz County; it took 11 days for crews to clear the slides and fully open the interstate and the rail lines. Damage caused by this storm throughout the Pacific Northwest totaled at least $800 million.

Snowmelt and rainfall in late December 1996 and January 1997 again triggered hundreds of landslides and debris flows. One landslide derailed five cars of a freight train between Seattle and Everett on the state's main north-south rail line; it took repair crews nine days to restore freight traffic, while Amtrak could not use the track for passenger rail service for weeks. Additionally, avalanches and avalanche control measures closed Interstate 90 over Snoqualmie Pass for 276 hours (more than 11 days) during the winter of 1996-97. The closures cost the state's economy an estimated $144 million.

The latest disaster of significance, the 2001 Nisqually earthquake caused between $1 billion and $4 billion in physical and economic damage. A University of Washington study estimated that 60 percent of small businesses in the region affected by the quake experienced productivity disruptions and 20 percent had a direct physical loss.

The Nisqually earthquake is neither the largest nor the most damaging seismic event that scientists expect to hit the state in the future. Of greatest concern are the surface faults in the heavily urbanized and populated central Puget Sound, home to more than

3.2 million people, about 60 percent of the state's population, and much of the state's economic base. A magnitude 6.7 earthquake on the Seattle fault – such a quake is smaller than what scientists believe is the maximum credible event – is expected to cause tremendous damage and economic disruption throughout the region. Preliminary estimates of damage and economic loss developed for a multi-disciplinary group studying the impacts of such an earthquake shows that it would result in a loss of $36 billion to the region. The magnitude of projected damage and economic losses is similar to the $30 billion in losses caused in the Southeast US by Hurricane Andrew in 1992 and $40 billion in losses caused by California's Northridge Earthquake in 1994.

How can disruptions to the state's economic well-being be reduced or prevented? Public and private organizations should develop plans to enable them to effectively respond during hazard events, ensure continuity of their operations so they can continue to provide essential services and limit disruptions to production and distribution of goods and services, and to reduce damages to facilities and prevent injuries to people.

Often organizations need assistance and incentives to do the planning necessary to protect the state's economy from the impact of hazard events. Establishing partnerships helps generate the synergy, momentum and resources necessary to research, write and coordinate necessary plans.

The focus of the action agenda that follows is on actions that promote a sustainable economy.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
3.1 – Provide incentives and resources for mitigation planning	3.1.1 – Provide grants, planning tools, training and technical assistance to increase the number of public and private sector hazard mitigation plans and initiatives, especially multi-jurisdiction partnerships.	State Emergency Management Division	Ongoing	Existing resources, mitigation grants	Providing incentives and resources encourages organizations to develop hazard mitigation plans and initiatives they otherwise might not have.	Expanding the number of hazard mitigation initiatives will improve the state's resistance to hazards and reduce the impact of hazard events on the state economy.
	3.1.2 – Develop a web-based hazard risk awareness tool to help state and local emergency managers take steps to reduce the impacts of potential imminent hazard events.	State Emergency Management Division	2 years	NASA grant	A real-time tool to help local officials assess the impact of potential future hazard events does not currently exist.	Improving knowledge about pending possible hazard events will help local officials improve take steps to reduce the impact of hazard events on local and state economies.
	3.1.3 – Develop a hazard event database to help state and local emergency managers with hazard mitigation and other planning initiatives.	State Emergency Management Division	1 year	Existing resources	A database to capture and organize the volume of information generated by hazard research and actual hazard events does not currently exist.	Improving knowledge about hazards and hazard events will improve mitigation and other planning designed to reduce the impact of hazard events on local and state economies.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	3.1.4 – Develop state hazard profiles for manmade and technological hazards.	State Emergency Management Division	2 years	Existing resources	Existing profiles only discuss state and local vulnerability to natural hazards.	These additional profiles will improve state and local hazard mitigation planning designed to reduce the impact of all hazard events on local and state economies.
	3.1.5 – Increase the number of state agencies participating as planning partners in the State Hazard Mitigation Plan.	State Emergency Management Division	3 years	Existing resources	Only 30 state agencies are part of the current state hazard mitigation planning effort.	Increasing the number of state agencies involved with hazard mitigation planning and initiatives will reduce the impact of hazard events on the operations of state government and on the state's economy.
3.2 – Continue critical business operations.	3.2.1 – Help state agencies develop continuity of operations and evacuation/relocation plans for critical business operations located in high-risk hazard areas, including lahar inundation zones and areas of high seismic risk.	State Emergency Management Division, with Department of Natural Resources – Division of Geology and Earth Resources	Ongoing	Existing resources	Agencies need to determine how to maintain critical operations in facilities located in high hazard risk areas.	Keeping state government operating during and following hazard events is important to serving clients and keeping the state's economy moving ahead.

Goal #3 – Promote A Sustainable Economy						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	3.2.2 – Develop a plan and seek funding for installing backup electric systems in critical state-owned facilities.	Department of General Administration	3 years	Resources to be determined	Backup power systems will maintain and protect key property and systems during hazard events.	Backup electric systems will keep key state services open during and after hazard events when vulnerable populations need services most.
	3.2.3 – Develop a plan and seek funding for installing backup telecommunication systems in critical state-owned facilities.	Department of Information Services	3 years	Resources to be determined	Backup communication systems will keep critical functions of state government operational during hazard events.	Backup communication systems will keep key state services open during and after hazard events when vulnerable populations need services most.
	3.2.4 – Help state agencies develop, implement and test mandated plans to ensure their information technology infrastructure are protected against service interruptions, including those caused by large-scale disasters.	Department of Information Services – Information Services Board	Ongoing	Existing resources	Information technology infrastructure is crucial to nearly all operations of state government.	Keeping state government operating during and following hazard events is important to serving clients and keeping the state's economy moving ahead.

Mitigation Goal #4 – Protect the Environment

Hazard events can wreak havoc on the physical environment, beyond damage to buildings. Volcanic eruption can level forests and fill watersheds with mud and other debris, destroying wildlife habitat and changing the course of rivers and streams. Floods can ruin critical salmon habitat and foul domestic water systems. Ground shaking of an earthquake can cause spills of hazardous materials into the environment. Landslides can block streams and rivers or dump silt into estuaries and waterways that are home to a myriad of marine life. Dead and diseased trees make for an unhealthy forest and provide fuel for wildland fires; a 2002 study showed that nearly 10 percent of state forestlands contained trees killed or defoliated by forest insects or diseases. High winds can knock down power lines that can spark and ignite nearby fuels. At times, debris from hazard events is disposed of in ways that foul areas of habitat critical to the survival of endangered species or into environmentally sensitive areas,

The focus of the action agenda that follows is protecting the environment from the direct and secondary impacts of natural hazard events.

Goal # 4 – Protect The Environment						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
4.1 – Develop hazard mitigation policies that protect the environment.	4.1.1 – Establish a working group with electric utilities to explore development of recommendations for selective de-energizing of power lines to reduce the risk of wildland fire in interface areas during emergencies.	Department of Natural Resources – Resource Protection Division, with Utilities and Transportation Commission and Department of Community Trade and Economic Development – Energy Office	2 Years	Existing resources	A standardized protocol for de-energizing power lines does not currently exist.	Reducing the potential for power-line caused fires in the interface area helps limit property damage and protects forest resources already at risk to wildfire.
	4.1.2 – Establish a working group with electric utilities to explore development of recommendations on cost-effective use of underground cable in high-risk hazard areas, including wildland fire interface areas.	Department of Natural Resources – Resource Protection Division, with Utilities and Transportation Commission and Department of Community Trade and Economic Development – Energy Office	2 Years	Existing resources	Burying power cables may reduce the number of fires caused by energized aboveground lines during hazard events.	Reducing the potential for power-line caused fires in the interface area helps limit property damage and protects forest resources already at risk to wildfire.
	4.1.3 – Develop and implement effective silviculture strategies that improve the health of forests and reduce the amount of fuels available for wildland fires from dead and dying trees.	Department of Natural Resources – Resource Protection Division	Develop plan – 1 Year; implement ongoing	Existing resources and National Fire Plan grants	About 10 percent of the state's forests have trees killed or defoliated by forest insects or diseases.	Improving the health of the forest will make less fuel available for wildland fire and protect forest resources.

Mitigation Goal #5 – Increase Public Preparedness for Disasters

Preparing for disasters caused by natural hazards can take many forms, including strengthening structures or securing items such as bookshelves to reduce potential damage and injuries during hazard events; keeping development out of hazard areas; providing information on hazards, vulnerability and preparedness to individuals and organizations; and providing training to responders.

Among the steps taken by state agencies to promote or increase public preparedness for disaster, include:

- Conducting research to further knowledge about hazards and vulnerability.
- Providing information on hazards and maps of their locations.
- Delivering an annual disaster preparedness campaign to the public.
- Providing grants for structural and non-structural actions to prevent or reduce future hazard-caused damage.

Despite the effort by state agencies to promote or increase public preparedness for disasters, a variety of factors hamper this work, including:

A lack of up-to-date information and data sets for natural hazards needed to guide development of land-use regulations and to prepare emergency response and hazard mitigation plans. For example, flood maps are inadequate and badly out of date; tsunami mapping is incomplete for Puget Sound; landslide mapping is limited, at best, statewide; and while development of seismic maps for the Puget Sound region continues, research and mapping in Eastern Washington is limited, leading to an incomplete understanding of the seismic risk there.

A lack of resources to learn more about natural hazards limits expansion of knowledge about hazards and vulnerability – funding for the state's geological survey has been shrinking as the state budget faces increasing pressure due to revenue shortfalls, and the region's seismic monitoring network needs additional funding for improved instrumentation and system expansion. Cities and counties are required to use the concept of best available science in identifying critical areas such as frequently flooded areas and geologically hazardous areas and in developing regulations to protect and prevent development in those areas. Emergency managers even need up-to-date and real-time data and information on which to base decisions before and during hazard events.

Decisions can only be as good as current hazard information and data networks provide. Only as the scientific knowledge of natural hazards grows will decisions on land use policy, various planning initiatives, and emergency response improve. The desired result is safer communities.

A lack of motivation by communities and the public to prepare for a disaster, and then to take appropriate action during and following a disaster event. Washington has a long history of hazard events, resulting in 37 Presidential disaster declarations since 1956.

Each of the 39 counties in the state has been declared a disaster area at least once since 1996, with four counties declared as disasters in the past eight years. The reasons individuals and communities do not prepare for a disaster can be many, including lack of knowledge about hazards and of their vulnerability; lack of resources to mitigate potential damage or take other steps to prepare; or lack of political will or incentive to take action.

Public action during and following the 2001 Nisqually earthquake demonstrated the success of the state's preparedness education program, but also pointed out that additional work is needed. Many businesses, schools, public agencies and individuals completed both structural and non-structural seismic retrofit projects, and many people, including teachers and school children, took their "drop, cover and hold" training seriously. However, television news reports showed adults reacting dangerously during and after the ground shaking; 911 call centers were overloaded with non-emergency calls; and many public and private organizations released their employees, jamming roadways before they could be evaluated for damage.

A better understanding of what the public knows about the hazards and risk they face, and what motivates – or does not motivate – people and organizations to prepare for hazard events, is necessary to improve the effectiveness of local and state preparedness education efforts.

Inconsistent quality in geotechnical reports and lack of resources and expertise at the local level to review such reports. Local agencies report that geotechnical reports often are based on project financing rather than the severity of the hazard. Because of this, reports and their recommendations are too narrow in scope. Many local agencies do not have in-house expertise to review the quality of geotechnical reports or their adequacy. In addition, there is no comprehensive review standard to help local jurisdictions gain the appropriate knowledge for review of geotechnical reports.

Two ways to provide such expertise are to have reports reviewed by a state agency such as the Department of Natural Resources' Division of Geology and Earth Resources, or to establish a peer review group of geotechnical engineers. State agencies in Colorado and Utah perform such reviews; the quality of reports in Utah improved once the state's standards became known. Peer reviews have been successful in the City of Issaquah, WA. Development of a model geotechnical report checklist for local jurisdictions would help them provide consistent reviews.

The focus of the action agenda that follows is increasing public preparedness for disasters.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
5.1 – Understand natural hazards and the risk they pose.	5.1.1 – Ensure that hydraulic analysis of watersheds and updated flood maps use the most current modeling available in order to provide an accurate portrayal of anticipated flood conditions.	Department of Ecology	Ongoing; complete by 2010	Flood mapping funds from FEMA	State currently involved in updating all flood hazard maps statewide; most are out of date by many years and do not reflect the impact of recent development.	Better information on watersheds and flood levels will improve understanding for decisions on floodplain management and strategies to protect lives and property.
	5.1.2 – Establish minimum standards and develop a model checklist for geotechnical reports.	Department of Natural Resources – Division of Geology and Earth Resources, with Department of Licensing	3-5 Years	Existing resources	Such standards do not currently exist.	Improved reports allow for better land-use decisions and improved public safety in critical areas, especially geologically hazardous and frequently flooded areas.
	5.1.3 – Establish a funded program for state agency or peer review of geotechnical and geologic reports to ensure their accuracy and basis on best available science.	Department of Natural Resources – Division of Geology and Earth Resources	3 Years	Resources to be determined	No program currently exists.	Improved reports allow for better land-use decisions and improved public safety in critical areas, especially geologically hazardous and frequently flooded areas.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.1.4 – Seek additional funding for the state's geologic survey for research to improve understanding of the threats posed by earthquakes, landslides, and other geologic hazards in Washington.	Department of Natural Resources – Division of Geology and Earth Resources, with Governor's Emergency Management Council	4-6 Years	Resources to be determined	Funds for the state's geologic survey work were cut in the 2003-05 budget due to a revenue shortfall.	Adequate funding is necessary to fully understand threat posed by geologic hazards and help communities protect and limit development in geologically hazardous areas.
	5.1.5 – Seek additional funding for maintenance and expansion of the Pacific Northwest Seismic Network, and for deploying the Advanced National Seismic System.	Department of Natural Resources – Division of Geology and Earth Resources, State Emergency Management Division, with University of Washington and Governor's Emergency Management Council	3 Years	Existing resources	Advanced seismic network instruments provide more information about earthquakes on a real-time basis than present instruments.	Real-time earthquake information can be critical in saving lives and preserving property in the immediate aftermath of a disastrous earthquake. It also improves understanding of the hazard, leading to improved public preparedness.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.1.6 – Obtain funding to complete tsunami modeling for all coastal areas of the state, including Puget Sound.	State Emergency Management Division, with Department of Natural Resources – Division of Geology and Earth Resources	Complete 11 jurisdictions in next 3 years; draft modeling plan extends to FY 2011	NOAA – National Tsunami Hazard Mitigation Program	Tsunami hazard is not well understood in all coastal communities threatened by these damaging sea waves.	Completing tsunami modeling and mapping will help communities limit future development in these areas and prepare evacuation plans and public education programs.
5.2 – Improve hazard information, including databases and maps.	5.2.1 – Develop and maintain an inventory of existing geographical databases for natural hazards.	Department of Natural Resources, with State Emergency Management Division and State Geographic Information Council	3 Years	Existing and additional resources	Many land-use planners and emergency managers do not know where to turn to for geographical (GIS) databases for hazards, or whether such databases exist.	Maintaining a centralized library of hazard databases will improve their accessibility and expand their use by land-use planners and emergency managers, resulting in better plans and mitigation initiatives.
	5.2.2 – Accelerate mapping of natural hazard areas around the state, including tsunami inundation areas in coastal areas, and develop GIS-compatible database products for them.	Department of Natural Resources – Division of Geology and Earth Resources	3 Years	Dependent on continued funding	Few GIS databases for natural hazards exist.	Availability of GIS databases for natural hazards would greatly improve mitigation initiatives and land-use planning.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.2.3 – Develop and maintain a central repository of geotechnical, geologic and hydrologic historical data.	Department of Natural Resources – Division of Geology and Earth Resources	3 Years	Dependent on additional funding	Many land-use planners and emergency managers do not know where to turn to for historical data on geologic and hydrologic hazards.	A centralized library of historic data on geologic and hydrologic hazards will improve their accessibility and expand their use by land-use planners and emergency managers, resulting in better plans and mitigation initiatives.
5.3 – Improve public knowledge of hazards and protective measures so individuals appropriately respond during hazard events.	5.3.1 – Assess the state's public education program on emergency preparedness and disaster resistance to determine its effectiveness and establish a baseline for future education efforts.	State Emergency Management Division	2 Years	Existing program resources, state mitigation programs	The state spends $40-50,000 each year on public education without understanding of what the public knows about hazards, what preparedness and mitigation steps people have taken, and how they will respond during a hazard event.	Understanding what the public knows about hazards and whether they know what to do before and during a hazard event will help the state develop an effective public education strategy and appropriate materials to improve public knowledge of hazards and preparedness.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.3.2 – Develop and implement a coordinated state all-hazard public education strategy that builds on the results of the assessment of previous education efforts. The strategy shall address development of programs and materials that: • Motivate individuals and families to take action to prepare for and then respond appropriately to hazard events. • Are culturally relevant for various ethnic populations. • Address the needs of special population groups, including but not limited to school children, senior citizens, and low-income families.	State Emergency Management Division	3 years	Existing mitigation program resources	The state spends $40-50,000 each year on public education without having a targeted strategy to increase public understanding of hazards, what preparedness and mitigation steps people should take, and how they should respond during a hazard event.	Establishing a targeted public education strategy will improve public knowledge of hazards and preparedness and improve the effectiveness of the state's public education program.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.3.3 – Develop and maintain a comprehensive public education program that increases awareness of the wildland interface fire risk and promotes actions that reduce the risk of fire to life and property.	Department of Natural Resources – Resource Protection Division	Ongoing	Existing resources	Development in interface areas is increasing, but the public, property developers and local planners do not fully understand the wildfire risk in those areas.	Increasing the knowledge of the public, property developers and local planners of the wildland fire risk and mitigating that risk will improve public safety in interface areas.
	5.3.4 – Expand the concept of the disaster information clearinghouse (e.g., Nisqually Earthquake Clearinghouse) into a multi-hazard information center.	State Emergency Management Division, in conjunction with Department of Natural Resources – Division of Geology and Earth Resources, and Federal Emergency Management Agency	3 years	Existing resources	There is no centralized resource for hazard information needed by emergency response, mitigation and land-use planners, and public education specialists.	A centralized location or resource of hazard information will improve planning and public education initiatives and improve the effectiveness of preparedness and mitigation efforts.
5.4 – Develop new policies to enhance hazard mitigation initiatives.	5.4.1 – Research and develop the rationale for a permanent state organization (board, commission, etc.) to establish, coordinate, and evaluate state policy on seismic safety.	State Emergency Management Division, with Department of Natural Resources and Governor's Emergency Management Council	3 years	Existing resources	The state currently does not have an organization to establish, coordinate, and evaluate state policy on seismic safety.	Establishing a policy organization will improve development and implementation of state seismic policy and result in safer communities.

Goal # 5 – Increase Public Preparedness For Disasters						
Strategy	**Action**	**Responsible Agency**	**Projected Timeline**	**Projected Resources**	**Rationale for Action**	**How Action Contributes to Mitigation Strategy**
	5.4.2 – Educate key state officials and policy makers about the state's natural hazards, the threats they pose, and strategies to reduce the risk.	State Emergency Management Division, with Governor's Emergency Management Council	1 year	Existing resources	Many elected state officials and their appointees lack knowledge of the hazards the state faces and strategies to reduce the risk. (Note: A new Governor will take office in January 2005.)	Improving knowledge of key state officials of the state's hazards and the risks they pose will lead to development of better policies and improved funding for hazard reduction strategies.

Hazard Mitigation Funding

As stated in the State Capability Assessment beginning on page 2 of this section, the primary sources for state and local hazard mitigation projects have been the federally funded programs available through the Federal Emergency Management Agency and the state-funded Flood Control Assistance Account Program. Funds for the state match or state contribution to local jurisdiction non-federal match comes from the state's general fund budget. Local governments have used a variety of other sources to fund hazard mitigation projects, including local revenues, Community Development Block Grants, Public Works Trust Fund loans, and a variety of transportation grant programs.

The State Capability Assessment matrix that begins on page 6 of this section, and the matrix on federal programs that begin on page 60 of this chapter, contain a variety of sources that have been and will continue to be used to fund hazard mitigation projects, plans and initiatives by local and state governments. Additionally, federal funding opportunities identified in *Federal Mitigation Programs, Activities and Initiatives*, appearing on pages 60-71 of this chapter, will be examined for applicability for future state hazard mitigation projects.

Currently, state general-fund resources are scarce for a wide range of state programs and services including those directly or indirectly related to hazard mitigation. Primary reasons for this are the 2001-2003 economic downturn combined with expanding public service caseloads and recent initiatives limiting state revenue collections and expenditures.

State Financial Outlook

The primary sources of revenue for Washington State governmental operations are sales and use taxes, state share of the property tax, and the business and occupations tax, a tax on the gross receipts of businesses. (Note: The state does not have an income tax.) These three sources make up more than 85 percent of the $23 billion, state general-fund budget for the 2003-2005 biennium. A variety of other taxes and fees make up the rest of the state budget.

The bulk of the state budget – more than 85 percent – pays for K-12 and higher education, and social, health and other human services. The rest is spent on legislative and judicial services, transportation, general government operations, and debt repayment. (Note: The state gasoline tax and federal sources primarily fund transportation.)

The state also has a biennial Capital Budget, funded through bonded debt as well as general fund appropriations and a variety of other funds earmarked for specific purposes (e.g., timber trust revenue for school construction).

Facing a projected $2 billion deficit for the 2003-2005 state general-fund budget, Governor Locke in 2002 established a Priorities of Government process to develop a

proposed budget that balanced the budget. The Governor also established a set of principles for capital expenditures that focused on preservation and protection of existing facilities.

Forecasts made in February 2004 (the latest available as of this writing) indicate that the state can expect an additional $76 million in general-fund revenue during the 2003-2005 biennium than was projected in November 2003. However, projected growth in caseloads for public assistance, medical assistance, prisons, and in enrollment in K-12 schools will cost the state about $150 million more than anticipated in September 2003 for the 2003-2005 budget.

Because the state's economic recovery will be slow, the long-term general-fund budget situation appears to be difficult. The Office of Financial Management in February 2004 prepared a six-year projection for the State General Fund budget, examining projected expenditures, current policies affecting the budget, and revenue trends. The projection shows the state budget going into deficit beginning in fiscal year 2006 (July 1, 2005 – June 30, 2006), with deficits increasing from $206 million at the end of FY 2006 to $2.3 billion at the end of FY 2009.

Local Funding

Within Washington State, there are 39 counties, 281 cities and towns, and more than 1,700 special districts of about 70 different types; special districts include diking and drainage districts, school districts, housing authorities, public stadium authorities, transportation and transit districts, park districts, and television reception improvement district (one in the state).

The primary revenue sources for general operations of counties, cities and towns are the local shares of property taxes, state sales and use taxes, and intergovernmental revenues such as local shares of the state gas tax, state timber revenue, and profits from state liquor sales. Counties, cities and towns also can authorize special levies to build roads, provide emergency medical services, maintain local hospitals, and make flood control improvements, for example. These local governments can authorize fees for various permits and business activities that take place there, but these revenues generally offset the cost of licensing or regulating the identified activities; additionally, they can issue bonds to pay for long-term capital projects.

Most special districts, such as school districts, public utility districts and port districts, also obtain money for operations and maintenance and for capital projects through both property tax levies and bonds.

All local government units with the ability to issue long-term bonds are limited to the amount of debt they can hold; the amount is based on a specific percentage of the assessed valuation of the district codified in state law.

In recent years, resources available to local governments for their operations have been squeezed by voter-approved initiatives that have eliminated some state revenue sources (motor vehicle excise tax, for example) and restricted annual local tax increases, as well as by economic conditions that reduced both local and state revenues.

As stated in the State Capability Assessment beginning on page 2 of this section, the primary sources for local hazard mitigation projects have been the federally funded programs available through the Federal Emergency Management Agency and the state's Flood Control Assistance Account Program. Local governments have used a variety of other sources to fund hazard mitigation projects, including local revenues, Community Development Block Grants, Public Works Trust Fund loans, and a variety of transportation grant programs.

Additionally, cities, towns and counties receive state grants from the Department of Community Trade and Economic Development to help pay for development of critical areas ordinances, comprehensive plans, associated land-use development regulations, and capital improvement plans.

Private Funding

It appears that little, if any private funding is available for state government hazard mitigation projects and initiatives, particularly construction-related projects.

A February 2004 search of the web site for The Foundation Center, www.fdncenter.org, an organization that promotes public understanding of philanthropy and helps grant seekers, was made to seek information on private or corporate giving related to disaster preparedness (through mitigation actions) and disaster relief. The search showed the following:

- The major focus of giving by corporations and private, family and community foundations is education and health care, which received the largest shares of grants, and captured 48 percent of grant dollars.

- Only 0.6 percent of the grants made by the largest foundations in 2001 went for safety and disaster relief (source: *Foundation Giving Trends*, The Foundation Center, 2003). The total granted by these foundations was $93 million. The bulk of the funds went for relief after a disaster event to meet immediate human needs (food, shelter, clothing, health care) rather than for long-term recovery or disaster prevention (hazard mitigation) activities. Overseas disasters receive much of the disaster relief made available.

Occasionally, corporations provide money and in-kind services for various mitigation projects that meet corporate community service goals; this occurs primarily on the local government or community level. For example, for Seattle's Project Impact and The Home Depot home improvement chain sponsored in-store earthquake retrofit clinics at

five stores throughout the Puget Sound region during January-May 2004; other organizations provided promotional support.

In the next three years, the state will continue to research private funding opportunities for state hazard mitigation projects and initiatives, and attempt to build on the success and corporate partnerships established by local governments.

Federal Funding

As stated previously, the state relies heavily upon federal hazard mitigation grant programs available through the Federal Emergency Management Agency to fund state government hazard mitigation projects. The document *Federal Mitigation Programs, Activities and Initiatives*, available on the FEMA web site at www.fema.gov/doc/fima/fmpai.doc, identifies an extensive list of federal funding opportunities for hazard mitigation projects and initiatives. This listing appears on the pages that follow.

Federal Mitigation Programs, Activities, and Initiatives

Program / Activity	Type of Assistance	Agency & Contact
Basic & Applied Research/Development		
Center for Integration of Natural Disaster Information	**Technical Assistance**: Develops and evaluates technology for information integration and dissemination	Department of Interior (**DOI**) –US Geological Survey (**USGS**) The Center for Integration of Natural Hazards Research: (703) 648-6059 hazinfo@usga.gov
Hazard Reduction Program	**Funding** for research and related educational activities on hazards.	National Science Foundation (**NSF**), Directorate for Engineering, Division of Civil and Mechanical Systems, Hazard Reduction Program: (703) 306-1360
Decision, Risk, and Management Science Program	**Funding** for research and related educational activities on risk, perception, communication, and management (primarily technological hazards)	**NSF** – Directorate for Social, Behavioral and Economic Science, Division of Social Behavioral and Economic Research, Decision, Risk, and Management Science Program (DRMS): (703) 306-1757 www.nsf.gov/sbe/drms/start.htm
Societal Dimensions of Engineering, Science, and Technology Program	**Funding** for research and related educational activities on topics such as ethics, values, and the assessment, communication, management and perception of risk	**NSF** – Directorate for Social, Behavioral and Economic Science, Division of Social, Behavioral and Economic Research, Societal Dimensions of Engineering, Science and Technology Program: (703) 306-1743
National Earthquake Hazard Reduction Program (NEHRP) in Earth Sciences	**Research** into basic and applied earth and building sciences.	**NSF** – Directorate for Geosciences, Division of Earth Sciences: (703) 306-1550

Program / Activity	Type of Assistance	Agency & Contact
Technical and Planning Assistance		
Planning Assistance to States	**Technical and planning assistance** for the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources.	Department of Defense (**DOD**) US Army Corps of Engineers (**USACE**) Contact the Floodplain Management Staff in the Appropriate USACE Regional Office Northwestern: (503) 808-3853
Disaster Mitigation Planning and Technical Assistance	**Technical and planning assistance** grants for capacity building and mitigation project activities focusing on creating disaster resistant jobs and workplaces.	Department of Commerce (**DOC**), Economic Development Administration (**EDA**): (800) 345-1222 **EDA**'s Disaster Recovery Coordinator: (202) 482-6225 www.doc.gov/eda
Watershed Surveys and Planning	**Surveys and planning studies** for appraising water and related resources, and formulating alternative plans for conservation use and development. Grants and advisory/counseling services to assist w/ planning and implementation improvement.	US Department of Agriculture (**USDA**) – National Resources Conservation Service (**NRCS**) Watersheds and Wetlands Division: (202) 720-4527 Deputy Chief for Programs: (202) 690-0848 www.nrcs.usda.gov
National Flood Insurance Program	**Formula grants to States** to assist communities to comply with NFIP floodplain management requirements (Community Assistance Program).	**FEMA**
Emergency Management / Mitigation Training	**Training** in disaster mitigation, preparedness, planning.	**FEMA**

Program / Activity	Type of Assistance	Agency & Contact
National Dam Safety Program	**Technical assistance,** training, and grants to help improve State dam safety programs.	**FEMA**
National Earthquake Hazards Reduction Program	**Training, planning and technical assistance** under grants to States or local jurisdictions.	**FEMA; DOI-USGS** USGS Earthquake Program Coordinator: (703) 648-6785
Volcano Hazards Program	**Technical assistance**: Volcano hazard warnings and operation of four volcano observatories to monitor and assess volcano hazard risk.	**DOI-USGS** Volcanic Hazards Program Coordinator: (703) 648-6708 or (650) 329-5228
Floodplain Management Services	**Technical and planning assistance** at the local, regional, or national level needed to support effective floodplain management.	**DOD-USACE** Northwestern Division: (503) 808-3853
Watershed Protection and Flood Prevention Program	**Technical and financial assistance** for installing works of improvement to protect, develop, and utilize land or water resources in small watersheds under 250,000 acres.	**USDA-NRCS** Director, Watersheds and Wetlands Division: (202) 720-3042, (202) 690-4614 www.nrcs.usda.gov
Environmental Quality Incentives Program (EQIP)	**Technical**, educational, and limited **financial assistance** to encourage environmental enhancement.	**USDA-NRCS** NRCS County Offices or NRCS EQUIP Program Manager: (202) 720-1834 www.nrcs.usda.gov

Program / Activity	Type of Assistance	Agency & Contact
National Earthquake Hazard Reduction Program	**Technical and planning assistance** for activities associated with earthquake hazards mitigation.	**FEMA, DOI-USGS** Earthquake Program Coordinator: (703) 648-6785
Hazard ID & Mapping		
National Flood Insurance Program: Flood Mapping;	**Flood insurance rate maps** and flood plain management maps for all NFIP communities;	**FEMA**
National Flood Insurance Program: Technical Mapping Advisory Council	**Technical guidance and advice** to coordinate FEMA's map modernization efforts for the National Flood Insurance Program.	**DOI-USGS** National Mapping Division: (573) 308-3802
National Digital Orthophoto Program	Develops **topographic quadrangles** for use in mapping of flood and other hazards.	**DOI-USGS** National Mapping Division: (573) 308-3802
Streamgaging and Flood Monitoring Network	Operation of a **network of over 7,000 streamgaging stations** that provide data on the flood characteristics of rivers.	**DOE-USGS** Chief, Office of Surface Water, (703) 648-5303
Mapping Standards Support	**Expertise in mapping and digital data** standards to support the National Flood Insurance Program.	**DOI-USGS** National Mapping Division: (573) 308-3802
Soil Survey	**Maintains soil surveys** of counties or other areas to assist with farming, conservation, mitigation or related purposes.	**USDA-NRCS** Deputy Chief for Soil Science and Resource Assessment: (202) 720-4630

Program / Activity	Type of Assistance	Agency & Contact
National Earthquake Hazards Reduction Program	**Seismic mapping for U.S.**	**DOI-USGS** USGS Earthquake Program Coordinator: (703) 648-6785
Project Support		
Aquatic Ecosystem Restoration	**Direct support** for carrying out aquatic ecosystem restoration projects that will improve the quality of the environment.	**DOD-USACE** Chief of Planning at USACE Regional Office Northwestern Division: (503) 808-3850
Beneficial Uses of Dredged Materials	**Direct assistance** for projects that protect, restore, and create aquatic and ecologically-related habitats, including wetlands, in connection with dredging an authorized Federal navigation project.	**DOD-USACE** Same as above
Wetlands Protection – Development Grants	**Grants** to support the development and enhancement of State and tribal wetlands protection programs.	Environmental Protection Agency (**EPA**) EPA Wetlands Hotline: (800) 832-7828 Or EPA Headquarters, Office of Water Chief, Wetlands Strategies and State Programs: (202) 260-6045
Clean Water Act Section 319 Grants	**Grants to States** to implement non-point source programs, including support for non-structural watershed resource restoration activities.	**EPA** Office of Water Chief, Non-Point Source Control Branch: (202) 260-7088, 7100

Program / Activity	Type of Assistance	Agency & Contact
Coastal Zone Management Program	**Grants** for planning and implementation of non-structural coastal flood and hurricane hazard mitigation projects and coastal wetlands restoration.	Department of Commerce **DOC** National Oceanic and Atmospheric Administration (**NOAA**) National Ocean Service Office of Ocean and Coastal Resource Management Chief, Coastal Programs Division: (301) 713-3102
Community Development Block Grant (CDBG) State Administered Program	**Grants to States** to develop viable communities (e.g., housing, a suitable living environment, expanded economic opportunities) in non-entitled areas, for low- and moderate-income persons.	US Department of Housing and Urban Development **(HUD)** State CDBG Program Manager Or State and Small Cities Division, Office of Block Grant Assistance, HUD Headquarters: (202) 708-3587
Community Development Block Grant Entitlement Communities Program	**Grants** to entitled cities and urban counties to develop viable communities (e.g., decent housing, a suitable living environment, expanded economic opportunities), principally for low- and moderate-income persons.	**HUD** City and county applicants should call the Community Planning and Development staff of their appropriate HUD field office. As an alternative, they may call the Entitlement Communities Division, Office of Block Grant Assistance, HUD Headquarters: (202) 708-1577, 3587

Program / Activity	Type of Assistance	Agency & Contact
Emergency Watershed Protection Program	Provides **technical and financial assistance** for relief from imminent hazards in small watersheds, and to reduce vulnerability of life and property in small watershed areas damaged by severe natural hazard events.	**USDA – NRCS** National Office – (202) 690-0848 Watersheds and Wetlands Division: (202) 720-3042
Rural Development Assistance -- Utilities	Direct and guaranteed rural economic **loans and business enterprise grants** to address utility issues and development needs.	**USDA**-Rural Utilities Service (RUS) Program Support: (202) 720-1382 Northern Regional Division: (202) 720-1402 Electric Staff Division: (202) 720-1900 Power Supply Division: (202) 720-6436
Rural Development Assistance – Housing	**Grants, loans, and technical assistance** in addressing rehabilitation, health and safety needs in primarily low-income rural areas. Declaration of major disaster necessary.	**USDA**-Rural Housing Service (RHS) Community Programs: (202) 720-1502 Single Family Housing: (202) 720-3773 Multi Family Housing: (202) 720-5177
Project Impact: Building Disaster Resistant Communities	**Funding and technical assistance** to communities and States to implement a sustained pre-disaster mitigation program.	**FEMA**
Flood Mitigation Assistance	**Grants to States** and communities for pre-disaster mitigation to help reduce or eliminate the long-term risk of flood damage to structures insurable under the National Flood Insurance Program.	**FEMA**

Program / Activity	Type of Assistance	Agency & Contact
Hazard Mitigation Grant Program	**Grants to States and communities** for implementing long-term hazard mitigation measures following a major disaster declaration.	**FEMA**
Public Assistance Program (Infrastructure)	**Grants to States and communities** to repair damaged infrastructure and public facilities, and help restore government or government-related services. Mitigation funding is available for work related to damaged components of the eligible building or structure.	**FEMA**
National Flood Insurance Program	Makes available **flood insurance** to residents of communities that adopt and enforce minimum floodplain management requirements.	**FEMA**
HOME Investments Partnerships Program	**Grants to States, local government** and consortia for permanent and transitional housing (including support for property acquisition and rehabilitation) for low-income persons.	**HUD** Community Planning and Development, Grant Programs, Office of Affordable Housing, HOME Investment Partnership Programs: (202) 708-2685 (202) 708 0614 extension 4594 1-800-998-9999
Disaster Recovery Initiative	**Grants** to fund gaps in available recovery assistance after disasters (including mitigation).	**HUD** Community Planning and Development Divisions in their respective HUD field offices or HUD Community Planning and Development: (202) 708-2605

Program / Activity	Type of Assistance	Agency & Contact
Non-Structural Alternatives to Structural Rehabilitation of Damaged Flood Control Works	**Direct planning and construction grants** for non-structural alternatives to the structural rehabilitation of flood control works damaged in floods or coastal storms. $9 million FY99	**DOD-USACE** Emergency Management contact in Northwestern Regional Office: (503) 808-3903
Partners for Fish and Wildlife	**Financial and technical assistance** to private landowners interested in pursuing restoration projects affecting wetlands and riparian habitats.	Department of Interior (**DOI**) – Fish and Wildlife Service (**FWS**) National Coordinator, Ecological Services: (703) 358-2201 A list of State and Regional contacts is available from the National Coordinator upon request.
Project Modifications for Improvement of the Environment	Provides for **ecosystem restoration** by modifying structures and/or operations or water resources projects constructed by the USACE, or restoring areas where a USACE project contributed to the degradation of an area.	**DOD-USACE** Chief of Planning at Northwestern Regional Office: (503) 808-3850
Post-Disaster Economic Recovery Grants and Assistance	**Grant funding** to assist with the long-term economic recovery of communities, industries, and firms adversely impacted by disasters.	Department of Commerce (**DOC**) – Economic Development Administration (**EDA**) EDA Headquarters Disaster Recovery Coordinator: (202) 482-6225
Public Housing Modernization Reserve for Disasters and Emergencies	**Funding** to public housing agencies for modernization needs resulting from natural disasters (including elevation, flood proofing, and retrofit).	**HUD** Director, Office of Capital Improvements: (202) 708-1640

Program / Activity	Type of Assistance	Agency & Contact
Indian Housing Assistance (Housing Improvement Program)	**Project grants and technical assistance** to substantially eliminate sub-standard Indian housing.	Department of Interior (**DOI**)-Bureau of Indian Affairs (**BIA**) Division of Housing Assistance, Office of Tribal Services: (202) 208-5427
Land Protection	**Technical assistance** for run-off retardation and soil erosion prevention to reduce hazards to life and property.	**USDA-NRCS** Applicants should contact the National NRCS office: (202) 720-4527
North American Wetland Conservation Fund	**Cost-share grants** to stimulate public/private partnerships for the protection, restoration and management of wetland habitats.	**DOI-FWS** North American Waterfowl and Wetlands Office: (703) 358-1784
Land Acquisition	**Acquires or purchases easements** on high-quality lands and waters for inclusion into the National Wildlife Refuge System.	**DOI-FWS** Division of Realty, National Coordinator: (703) 358-1713
Federal Land Transfer / Federal Land to Parks Program	**Identifies, assesses, and transfers available Federal real** property for acquisition for State and local parks and recreation, such as open space.	**DOI-NPS** General Services Administration Offices Fort Worth, TX: (817) 334-2331 Boston, MA: (617) 835-5700 Or Federal Lands to Parks Leader NPS National Office: (202) 565-1184
Wetlands Reserve Program	**Financial and technical assi stance** to protect and restore wetlands through easements and restoration agreements.	**USDA-NRCS** National Policy Coordinator NRCS Watersheds and Wetlands Division: (202) 720-3042

Program / Activity	Type of Assistance	Agency & Contact
Transfers of Inventory Farm Properties to Federal and State Agencies for Conservation Purposes	Transfers title of certain inventory farm properties owned by FSA to Federal and State agencies for **conservation** purposes (including the restoration of wetlands and floodplain areas to reduce future flood potential)	US Department of Agriculture (**USDA**) – Farm Service Agency (**FSA**) Farm Loan Programs National Office: (202) 720-3467, 1632
Financing and Loan Guarantees		
Physical Disaster Loans and Economic Injury Disaster Loans	**Disaster loans** to non-farm, private sector owners of disaster damaged property for uninsured losses. Loans can be increased by up to 20 percent for mitigation purposes.	Small Business Administration (**SBA**) National Headquarters, Associate Administrator for Disaster Assistance: (202) 205-6734
Conservation Contracts	**Debt reduction** for delinquent and non-delinquent borrowers in exchange for conservation contracts placed on environmentally sensitive real property that secures FSA loans.	**USDA-FSA** Farm Loan Programs FSA National Office: (202) 720-3467, 1632 or local FSA office
Clean Water State Revolving Funds	**Loans** at actual or below-market interest rates to help build, repair, relocate, or replace wastewater treatment plants.	**EPA** EPA Office of Water, State Revolving Fund, Branch Chief: (202) 260-7359 A list of Regional Offices is available upon request
Section 108 Loan Guarantee Program	**Loan guarantees** to public entities for community and economic development (including mitigation measures).	**HUD** Community Planning and Development staff at appropriate HUD field office, or the Section 108 Office in HUD Headquarters: (202) 708-1871

Program / Activity	Type of Assistance	Agency & Contact
Section 504 Loans for Housing	**Repair loans, grants and technical assistance** to very low-income senior homeowners living in rural areas to repair their homes and remove health and safety hazards.	US Department of Agriculture (**USDA**) – Rural Housing Service (**RHS**) Contact local RHS Field Office, or RHS Headquarters, Director, Single Family Housing Direct Loan Division: (202) 720-1474
Section 502 Loan and Guaranteed Loan Program	Provides **loans, loan guarantees, and technical assistance** to very low and low-income applicants to purchase, build, or rehabilitate a home in a rural area.	**USDA-RHS** Contact the Local RHS Field Office, or the Director, Single Family Housing Guaranteed Loan Division, RHS: (202) 720-1452
Rural Development Assistance -- Utilities	Direct and guaranteed **rural economic loans and business enterprise grants** to address utility issues and development needs.	**USDA**-Rural Utility Service (**RUS**) Contact Rural Development Field Offices, or RHS, Deputy Administrator, Community Programs Division: (202) 720-1490
Farm Ownership Loans	**Direct loans, guaranteed / insured loans, and technical assistance** to farmers so that they may develop, construct, improve, or repair farm homes, farms, and service buildings, and to make other necessary improvements.	**USDA-FSA** Director, Farm Programs Loan Making Division, FSA: (202) 720-1632